

WHAT IS CLAIMED IS:

1. A transmission method comprising the steps of:

acquiring a carrier of a specified frequency;

acquiring first and second transmission data sequences;

generating a first baseband waveform of a cycle equivalent to an integral multiple of the carrier and multiplying the generated first baseband waveform by the carrier and the first transmission data sequence to acquire a first transmission waveform;

generating a second baseband waveform having a specified phase difference from the first baseband waveform at the cycle equivalent to the integral multiple of the carrier and multiplying the generated second baseband waveform by the phase shifted carrier resulting from phase shift of the carrier and the second transmission data sequence to acquire a second transmission waveform; and

mixing the first transmission waveform with the second transmission waveform to acquire a transmission signal and transmitting the transmission signal.

2. The transmission method according to claim 1, wherein the first and second baseband waveforms increase or decrease levels at every cycle and are provided with an approximately 180-degree phase difference from each other.

3. The transmission method according to claim 1,  
wherein the phase shifted carrier is a waveform  
resulting from shifting the carrier by approximately 90  
degrees.

4. The transmission method according to claim 1,  
wherein at least first and second sub-bands are  
provided by dividing a transmission band for transmission  
signals; and

wherein a frequency of the carrier is selected to  
transmit a transmission signal using the first or second  
sub-band.

5. The transmission method according to claim 4,  
wherein each of the sub-bands uses a different  
antenna for transmission.

6. The transmission method according to claim 1,  
wherein the carrier is phase-adjusted based on  
components included in a received signal.

7. A transmitter comprising:  
a carrier generation means for generating a  
carrier of a specified frequency;  
a baseband processing means for acquiring first  
and second transmission data sequences;

a first baseband waveform generation means for generating a first baseband waveform of a cycle equivalent to an integral multiple of the carrier based on a carrier generated by the carrier generation means and multiplying the generated first baseband waveform by the carrier and the first transmission data sequence;

a second baseband waveform generation means for generating a second baseband waveform having a specified phase difference from the first baseband waveform at the cycle equivalent to the integral multiple of the carrier and multiplying the generated second baseband waveform by the phase shifted carrier resulting from phase shift of the carrier and the second transmission data sequence;

a mixing means for mixing a signal multiplied by the first baseband waveform generation means with a signal multiplied by the second baseband waveform generation means; and

a transmission means for transmitting a signal mixed by the mixing means.

8. The transmitter according to claim 7,  
wherein a first baseband waveform generated by the first baseband waveform generation means and a second baseband waveform generated by the second baseband waveform generation means increase or decrease levels at every cycle and are provided with an approximately 180-degree phase difference from each other.

9. The transmitter according to claim 7,  
wherein the phase shifted carrier handled by the  
second baseband waveform generation means is a waveform  
resulting from shifting the carrier handled by the first  
baseband waveform generation means by approximately 90  
degrees.

10. The transmitter according to claim 7,  
wherein at least first and second sub-bands are  
provided by dividing a transmission band for transmission  
signals; and

wherein a frequency of the carrier is selected to  
transmit a transmission signal using the first or second  
sub-band.

11. The transmitter according to claim 10,  
wherein the transmission means is provided with a  
plurality of transmission antennas and each of the sub-  
bands uses a different antenna.

12. The transmitter according to claim 7,  
further comprising:

a phase shifter to phase-adjust a carrier  
generated from the carrier generation means based on  
components included in a received signal.

13. A reception method comprising the steps of:  
acquiring a received carrier of a specified  
frequency;

extracting a received signal for a transmission  
band, multiplying the extracted received signal by the  
received carrier, and sampling the multiplied signal at a  
specified cycle equivalent to an integral multiple of the  
received carrier to acquire first received data; and

multiplying the received signal by a phase-  
shifted received carrier resulting from phase-shifting the  
received carrier and sampling the multiplied signal at a  
specified cycle equivalent to an integral multiple of the  
received carrier to acquire second received data.

14. The reception method according to claim 13,  
wherein the first and second received data are  
alternately selected at a specified sampling cycle to  
generate a unified received data sequence.

15. The reception method according to claim 13,  
wherein the received carrier is phase-adjusted by  
components extracted from data not selected in the  
selection process.

16. The reception method according to claim 13,  
wherein at least first and second sub-bands are  
provided by dividing a transmission band for received

signals; and

wherein a frequency of the received carrier is selected to transmit a received signal using the first or second sub-band.

17. The reception method according to claim 16, further comprising the step of:

receiving a signal using a different antenna for each of the sub-bands and extracting the received signal using a filter provided for each of the sub-bands.

18. A receiver comprising:

a carrier generation means for generating a received carrier of a specified frequency;

a filter to pass a received signal for a transmission band;

a first reception means for multiplying an output from the filter by the received carrier, and sampling the multiplied signal at a specified cycle equivalent to an integral multiple of the received carrier to acquire first received data; and

a second reception means for multiplying an output from the filter by a phase-shifted received carrier resulting from phase-shifting the received carrier and sampling the multiplied signal at a specified cycle equivalent to an integral multiple of the received carrier to acquire second received data.

19. The receiver according to claim 18 further comprising:

a selection means for alternately selecting the first and second received data at a specified sampling cycle to generate a unified received data sequence.

20. The receiver according to claim 18, wherein the received carrier generated from the carrier generation means is phase-adjusted by components extracted from data not selected in the selection process.

21. The receiver according to claim 18, wherein at least first and second sub-bands are provided by dividing a transmission band for received signals; and

wherein a frequency of the received carrier is selected to transmit a received signal using the first or second sub-band.

22. The receiver according to claim 21, wherein the sub-bands are provided with a plurality of antennas for acquiring a received signal; and wherein the filter is provided for each of the sub-bands.